

Claims

1. A method of connecting a panel (14) to a panel joining member (10), the method including the steps of:

forming a recess (16) adjacent an edge of a panel (14);

5 locating said panel edge within a panel receiving portion of a panel joining member (10);

locating said panel (14) against a stop member (15) and aligning the recess with a fastener aperture (18) formed in an inner wall of the panel receiving portion;

10 inserting a fastener (17) through the aperture (18) into the corresponding recess (16) in the panel, the fastener urging the panel (14) towards the outer wall (13A) of the panel receiving portion.
2. A method according to Claim 1, wherein a receiver (30) is inserted into the recess prior to the panel being located within the panel joining member.
- 15 3. A method according to Claim 2, wherein an adhesive (21) is introduced between the panel and one or more walls of the joining member.
4. A method according to any preceding claim wherein an adhesive bond weld (20) is introduced when the fastener has been tightened substantially.
5. A method according to any preceding claim wherein the fastener is an
20 expanding rivet fastener to engage the panel tightly.
6. A method according to any of Claims 1 to 4, wherein the fastener (17) has a screw-thread to engage the panel and/or panel joining member.
7. A method according to any of Claims 2 to 6, wherein the receiver is an adapter, the adapter having a shape complementary to that of the recess.
- 25 8. A method according to any preceding claim wherein the recess (16) narrows away from its open end.

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9. A method according to any of Claims 2 to 8, wherein the fastener is introduced into the receiver at an angle inclined to the axis perpendicular to the surface of the panel.
- 5 10. A method according to any preceding claim, wherein the or each panel includes one or more projections (52) to engage a corresponding recess (55) in a panel joining member thereby forming a push-fit type joint.
11. A method according to any preceding claim, wherein opposing walls (54A,54B) of the panel joining member are inclined together at an angle of up to 5°.
- 10 12. A method according to Claim 11, wherein the incline angle is from 0.7° to 2°.
13. A panel joining member comprising a joining element (10) having at least one panel receiving portion and at least one fastening assembly,
15 the or each fastening assembly comprising a fastener (17) and a receiver (30), wherein the or each panel receiving portion is defined by spaced opposing walls (13A,13B) including a panel stop member (15), located on at least one of the inner facing surfaces of said opposing walls (13A,13B), and in which a fastener aperture (18) is located through one of said spaced opposing walls.
- 20 14. A panel joining member according to Claim 13, wherein where two panel receiving portions subtend an angle of less than 180°, the fastener aperture (18) is located in the internal wall of the joining member.
15. A panel joining member according to Claim 13 or Claim 14, wherein the receiver (30) of the fastener assembly is secured within a panel along a
25 selected panel edge for inserting into a panel receiving portion.
16. A panel joining member according to any of Claims 13 to 15, wherein the receiver (30) comprises a body adapted for engagement with a panel, the body including an open mouthed recess for receiving a fastener.

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17. A panel joining member according to Claim 16, wherein the receiver (30) narrows away from the open mouth.
18. A panel joining member according to any of Claims 13 to 17, wherein the spaced opposing walls (13A,13B) are inclined together at an angle of up to 5°.
19. A panel joining member according to Claim 18, wherein the incline angle is from 0.7° to 2°.
20. A panel joining member according to any of Claims 13 to 19, wherein the panel joining member includes a chamfered edge (56).
21. A panel joining member according to any of Claims 13 to 20, wherein the fastener is a screw (17) having a flat ended shank.
22. An adapter (30) to receive a fastener and for insertion into a panel recess (16), the adapter (30) comprising an opening to receive a fastener (17), the mouth of the opening having a diameter greater than that of said fastener (17).
23. An adapter according to Claim 22, wherein the opening includes a narrowing at its closed end to grip the end of a fastener.
24. An adapter according to Claim 23, wherein the opening and the narrowing are cylindrical.
25. An adapter according to Claim 24, wherein the cylinders are co-axial.
26. A panel joint, the panel joint comprising;
- a panel (14) an edge of which is locally flat and which flat region includes a recess (16);
- a joining member (10), the joining member (10) having spaced opposed walls (13A,13B) to receive a panel;
- one or more stop members (15) against which a panel is aligned;

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and wherein the joining member (10) has an aperture (18) in one of said walls (13B) to enable a fastening member (17) to pass through the joining member (10) and engage the panel (14), thereby urging the panel (14) against the opposite wall (13A) of the joining member (10).

- 5 27. A joint according to Claim 26, wherein the joint includes adhesive (21) between the panel and one or more walls of the joining member to increase the strength of the joint.
- 10 28. A joint according to either Claims 26 or 27, wherein an adapter (30) is located in the recess (16), the adapter (30) having a shape complementary to that of the recess.
29. A joint according to Claim 28, wherein the adapter (30) narrows away from its open end to ensure that the material from which the adapter is formed undergoes plastic flow around the fastening member as the fastening member is fully engaged.
- 15 30. A joint according to any of Claims 26 to 29, wherein the fastening member (17) includes a screw thread to engage the joining member.
31. A joint according to any of Claims 26 to 30, wherein the recess (16) includes an aperture to receive a nut (31) into which the fastening member (17) can be screwed, the member and the nut co-operatively engaging to
- 20 lock the nut against the inner wall.
32. A joint according to any of Claims 26 to 31, wherein the fastening member is aligned along an axis which is at an angle inclined to the axis perpendicular to the surface of the panel.
33. A panel joining member substantially as herein described with reference to
- 25 and as illustrated in the accompanying drawings.
34. An adapter substantially as herein described with reference to and as illustrated in the accompanying drawings.
35. A panel joint substantially as herein described with reference to and as illustrated in the accompanying drawings.